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ional. I am quite able to agree with him, for in the large series that I have referred to I have found only twenty-two eggs that measured 3.10 or more in length, and of those, fifteen exceeded 3.15, four of these going beyond 3.20 inches. From these data the mammoth proportions of my eggs may perhaps be better appreciated. They measure 3.47 by 2.62, and 3.37 by 2.64 inches. Plain figures, while doubtless plain facts, are less readily digested than a more tangible object lesson, so I have included in a photograph for comparison, a large egg of a western red-tailed hawk, measuring 2.52 by 2.00, an average golden eagle's egg measuring 2.97 by 2.23, and the larger of my large set measuring 3.47 by 2.62. From the photograph and measurements, it will be seen that the large eagle's egg is as much larger than the average as that is larger than a red-tail's egg.

In coloration, as appears in the photograph, the larger egg is the more lightly marked. The markings appear more as ingrained shell markings of faint lavender and umber, giving the egg the appearance of having a very dirty white ground color. There are a few superficial spots and small splashes of a darker shade. The smaller egg is very handsome, the markings being of a much brighter tint, making the ground appear brighter and clearer by contrast. As shown in the photograph, the markings are heavier at the small end. At the large end the markings are all nearly confluent but very faint in shade, and have more the appearance of shell markings. The intermediate blotches and splashes are very bright. In both eggs the shell is very smooth, with few granulations. Incubation had just commenced and was equal in both eggs.

One naturally wonders why there should be so much difference between these eggs and others taken from the same nests and presumably the product of the same birds. A set of two taken from a "series of five" nests occupied by this pair of birds, are about average eggs, measuring 2.97 by 2.23 and 2.93 by 2.24 inches. The larger is the central egg in the photograph. The markings are strongly defined blotches and spots of a dark reddish brown and almost wholly at the larger end, no lavender shade appearing anywhere. The other egg is absolutely unmarked.

The "Spook" Canyon bird was unusually dark seeming almost black, and very large—in fact the largest and blackest eagle I ever saw, and in perfect plumage. I had a good view of her when she left the nest for I was not five feet from her. Then after I had left the nest and was on the ground below not more than fifty feet away she did what no eagle of my acquaintance ever did before, came back to the nest and settled down on it again with head up watching me and making a curious clucking, like the common call of the Cooper hawk, which she repeated a dozen times.

Escondido, California.

An Ornithological Comparison of the Pajaro Valley in California with Sioux County in Nebraska

BY J. S. HUNTER

DURING the summer of 1903 I was located in the Pajaro valley in Santa Cruz county, and it was with great interest that I compared ornithological conditions there with those in Sioux county in northwest Nebraska.

Sioux county is bordered on the north by South Dakota and on the west by

Wyoming. While the region is not mountainous the flora and fauna certainly tend toward mountainous forms. On the whole it is perhaps the most interesting section of the state for bird work. Nearly every summer a party of Nebraska bird people spend some little time there in studying bird life and collecting bird skins. As yet, however, owing to the distance from the center of ornithological activities the region has not been thoroughly worked. With the exception of two weeks in February of 1896 the work done has been confined to late spring and early summer time, thus leaving nearly all of the spring and all of the fall migrations unrecorded. When these and also the winter residents are thoroughly known it is safe to say that the geographical range of many species will be extended and that a number of species will be added to the already large Nebraska list.

The topography of the section is peculiar. Hat Creek valley, which comprises a large part of the county, is bordered on the south and west by high bluffs, and is about one hundred miles across. During the summer it is about as dry and hot a place as one would care to be in. Except along the almost dry water courses there is scarcely any vegetation to be seen. The geological formation in some parts of the valley is much like that of the famous Bad Lands of South Dakota. In the section on the northwest side there is considerable sage-brush and other vegetation. In the dryer parts the common birds are the Say phoebe and the Arkansas kingbird. In the sage-brush section bird life is more numerous; good sized bands of sharp-tailed grouse and an occasional bunch of sage grouse will be seen. Other species, in all about thirty, make their homes there. As we come nearer to the bluffs the entire nature of the country changes; the streams are rather thickly bordered with shrubs and other plants, water flows the year through, and bird life also becomes more abundant. As we follow one of the little creeks into the canyon from which it emerges we are more and more impressed by the entire change of the surroundings. The walls of the canyon tower in places almost perpendicularly 500 feet, and where not too steep they are covered with a scattering growth of yellow pine, the fallen leaves of which cover the ground so thickly that it is exceedingly difficult to climb the side of the canyon. The bottom of the canyon is filled with a dense growth of trees and under-brush, and if it were not for an occasional path, traveling there would be very difficult. The trees are very similar in species to those found throughout the canyon region of the Rocky Mountains and comprise such forms as the quaking asp, juniper, poplar, black birch and many others that need not be listed. After following the many turns of the stream for three or four miles the summit of the bluffs is reached, and again the flora changes. The ground is covered with a thick growth of range grass; no bushes nor trees can be seen except a pine or two at the head of the canyon. Looking backward we see below us the dry, parched, Hat Creek valley extending as far as the eye can see toward the north and in the far distance can be discerned the faint blue line of the Black Hills over a hundred miles away.

By those who know California Coast Range conditions it will be seen that only in respect to the canyons are the two localities similar. The Hat Creek valley corresponds to the fertile Pajaro Valley so famous in the state. The vegetation is entirely different; redwoods replace pines and many other plants are just as different. Climatic conditions are also very different; in Nebraska it is not uncommon for the temperature to drop as low as 40 degrees below zero, in the Pajaro valley 20 degrees above zero is about as cold as it ever gets. But let us look at the bird life.

In this comparison I have included only those birds on which I have secured notes. The California list covers a much longer time than that of Nebraska, from

April 20 to December 1. The list for the former place includes 106 species and for the latter 103. There are 45 species that are common to both regions. These are the mourning dove, turkey vulture, marsh hawk, sharp-shinned hawk, Cooper hawk, Swainson hawk, Ferruginous rough-leg hawk, golden eagle, sparrow hawk, burrowing owl, kingfisher, Cabanis woodpecker, Lewis woodpecker, Red-shafted flicker, dusky poor-will, white-throated swift, Arkansas kingbird, Say phoebe, western wood pewee, common crow, western meadowlark, Bullock oriole, Brewer blackbird, Pine siskin, western lark sparrow, western chipping sparrow, Lincoln sparrow, black-headed grosbeak, lazuli bunting, western tanager, cliff swallow, barn swallow, tree swallow, violet-green swallow, cedar waxwing, western warbling vireo, Cassin vireo, yellow warbler, Tolmie warbler, long-tailed chat, western mockingbird, rock wren, russet-backed thrush, western robin. Some of these are more abundant in one region than in the other. The white-throated swift is one of the most noticeable birds in Sioux county. I saw the bird only once in Santa Cruz county. The numbers of individuals of the species of swallows is greater in Santa Cruz county. Many of the species are found at different times of the year in the two localities. The Say phoebe is one of these, for in Sioux county it is a rather common breeder while in Santa Cruz it is a winter resident. The western tanager, Audubon warbler, western robin, and a few others are birds of this sort. Most of the species spend the winter in Santa Cruz county but only those that are able to resist the severe cold stay in Sioux county. Occasionally however where owing to the constant seepage of water the ground does not freeze the Wilson snipe may be found all winter.

As to species the gallinaceous birds are better represented in Sioux county; the bob-white, prairie sharp-tailed grouse, and sage hen are all found there. None of them are so common as is the California quail in Santa Cruz county. The band-tailed pigeon is not found in Nebraska. Some years it is very common in the Pajaro valley, so I am told, but last year the species was rather rare. The condor, white-tailed kite, duck hawk, barn owl, long-eared owl, and California screech owl were recorded in Santa Cruz county. Some of them undoubtedly occur in Sioux county but were not seen there. The western red-tailed hawk is replaced there by the Krider hawk, and the Pacific horned owl by the western horned owl. The barred owl's characteristic hoot is often heard in Sioux county but not in Santa Cruz. The prairie falcon although occurring in Santa Cruz county was not seen during the summer, in Sioux county. This is due to the fact that the country is thinly settled and the birds have a chance to live undisturbed.

The order Coccoyges is represented by different species in the two localities; in Nebraska there are the yellow and black-billed cuckoo; the road-runner and California cuckoo do not occur there.

One of the most conspicuous woodpeckers in Sioux county is the red-headed, which is replaced in California by the California woodpecker. None of the smaller members of the genus *Dryobates* have been noted in Sioux county, but in Santa Cruz the willow woodpecker is common.

The *Macrochires* are stronger on small species in California and on large species in Nebraska. Two hummingbirds, the Anna and rufous, are common in Santa Cruz county but are not found in Sioux county; neither does the Vaux swift occur there. The nighthawk on the other hand is very common.

The most common flycatcher in Sioux county is the Say phoebe, while the black phoebe is the most common in Santa Cruz. This and the western flycatcher

are California species and do not occur in Sioux county. The Acadian and alder flycatcher are eastern forms that are found there.

The form of the horned lark as would be supposed is different in the two sections, the desert horned lark being the common form in Sioux county and the Mexican horned lark in Santa Cruz.

The yellow-billed magpie of California has much the same habits as its eastern relative the black-billed, but it is not so abundant and consequently seems much wilder. Instead of the harsh call of the California jay or the rattle of the coast jay, in Sioux county the more musical croak of the pinyon jay is heard, while an occasional eastern blue jay is to be seen endeavoring to make the other birds know that he is there to jolly up the hawks and owls. Once in a while a Clarke crow may be seen perched on the top of some tall pine. Rarely also the common crow will be seen winging its way across the canyon in search of better feeding grounds, and although it is quite uncommon in the Pajaro valley, it is more abundant than in Sioux county. That bird parasite, the cowbird, is common in Sioux county, and fortunately for the other birds it is not so in California. The bronzed grackle is an eastern bird without a California relative, but the red-wing of the east is represented by the bicolored black-bird.

The family Fringillidæ is largely represented by different species in the two localities. The Santa Cruz birds are the purple finch, linnet, Arkansas goldfinch, intermediate, Nuttall, and golden-crowned sparrows, Point Pinos junco, Santa Cruz song sparrow, California, and spurred towhees. The Sioux county species are the American goldfinch, McCown longspur, western vesper, Baird, and western grasshopper sparrows, white-winged junco, mountain song sparrow, Arctic towhee, dickcissel, and the lark bunting. It is likely that the intermediate, and golden-crowned sparrows occur in Sioux county during their migrations as they are common further east.

The warblers and vireos are well represented in the two sections; the western warbling vireo, Pacific yellow-throat, and the Calaveras, Townsend, pileolated, and black-throated gray warblers are Santa Cruz species, while the plumbeous, and red-eyed vireos, the western yellow-throat and the Tennessee, and yellow-rumped warblers, and the redstart are Sioux county forms. One of the most interesting variations in the warblers is the fact that the Audubon warbler which is so common a winter resident in the Pajaro valley is a rather common breeder in Sioux county.

The remaining birds that were found in Santa Cruz county were the western martin, California shrike, American pipit, California thrasher, the Vigors, western winter, and tule wrens, California creeper, plain-tit, Barlow chickadee, intermediate wren-tit, bush-tit, ruby-crowned kinglet, western gnatcatcher, hermit thrush, varied thrush, and the western bluebird. Those in Sioux county are the white-rumped shrike, brown thrasher, catbird, western house wren, slender-billed nuthatch, Townsend solitaire, wood thrush, eastern robin, eastern bluebird and the mountain bluebird.

The best singers of both regions are found in these last two bunches. Perhaps the best California one is the California thrasher but I do not think that it equals either the brown thrasher, the catbird, or the Townsend solitaire which are all rather common in the Nebraska region.

Berkeley, California.